

# PERLITE

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In 2004, the amount of domestic processed crude and expanded perlite sold and used increased slightly compared with that of 2003. Domestic production of processed crude perlite rose for the first time since 1999 when production was 711,000 metric tons (t). In 2004, imports of crude processed perlite decreased by about 3% to about 238,000 t. Exports of crude processed perlite were estimated to have been unchanged when compared with those of 2003. Trade data in this report are from the U.S. Census Bureau. Percentages in this report were computed using unrounded data.

## Production

According to the data collected by the U.S. Geological Survey (USGS), the amount of U.S.-processed crude perlite sold or used increased by about 3% to 508,000 t in 2004 compared with that of 2003. The value of processed crude perlite sold or used increased by 9.4% to \$20.6 million compared with that of 2003. The amount of expanded perlite sold or used by domestic producers increased slightly to 670,000 t and the associated value increased to \$151 million (table 1).

Domestic production data for perlite were derived by the USGS from two voluntary annual surveys—one for domestic mine operations (processed crude perlite) and one for expanding plants. The expanding plants used domestic and imported processed crude perlite. All the processed crude perlite described in table 1 was produced at 10 mines operated by 8 companies; 8 of the 10 mine operators responded to the USGS survey, representing about 98% of the processed crude perlite sold or used in 2004. The processed crude perlite that is reported in table 1 was mined in Arizona, California, Idaho, Nevada, New Mexico, Oregon, and Utah. The mines in New Mexico and Oregon accounted for most of the tonnage mined. Ore producers, in alphabetical order by State, were Harborlite Corp. in Arizona and New Mexico; American Perlite Co. in California; Idaho Minerals LLC in Idaho; Eagle-Picher Minerals, Inc. and Wilkins Mining and Trucking, Inc. in Nevada; Cornerstone Industrial Minerals Corp. in Oregon; Dicaparl Corp. in New Mexico; and Basin Perlite Co. in Utah.

Of the 62 expanding plants canvassed, 61 were active. Of those, 40 plant operators (66%) responded, reporting about 76% of the total expanded perlite sold or used. Production information for nonresponding companies was estimated based on previously reported data. The top seven producers of expanded perlite, each with production of more than 25,000 metric tons per year, accounted for about 81% of expanded perlite sold or used in the United States in 2004. The remaining 19% was produced by 27 companies. Sun Gro Horticulture Ltd. reported the closure of its Seneca, IL, plant as of May 2003. The plant produced expanded perlite for potting soils and horticultural uses. Sun Gro continued to operate expanders in Arkansas, Michigan, and Texas. In September 2004, Noble Materials Inc. sold its Fallon, NV, perlite expander to Noble Acquisitions LLC, which will be operated under the name Noble Perlite. Noble Materials continued to operate an expander in Oklahoma City, OK.

## Consumption

In 2004, domestic apparent consumption of processed crude perlite was 709,000 t, a slight increase compared with that of 2003. Expanded perlite consumed for construction-related uses, the major market for expanded material, remained at about 415,000 t, the same as in 2003. Construction uses of expanded perlite, which consisted of concrete aggregate, formed products, masonry- and cavity-fill insulation, and plaster aggregate, accounted for about 62% of total domestic sales in 2004. Expanded perlite consumption increased for fillers, horticultural aggregates, laundries, plaster aggregate, and miscellaneous uses, while consumption decreased for concrete aggregate, filter aid, formed products, low-temperature insulation, and masonry- and cavity-fill insulation (table 3). Perlite was expanded, usually for local consumption, in 30 States. The leading States in production of expanded perlite sold or used, in descending order, were Illinois, Georgia, Mississippi, Pennsylvania, Minnesota, Alabama, Virginia, Oregon, California, and Florida (table 2).

## Prices

Processed crude perlite sold at an average value of \$40.94 per metric ton, which was an increase of about 5.4% compared with that of 2003. Perlite consumed by expanding plants operated by the mining companies was valued at \$39.09 per ton, which was an increase of about 7.8% compared with that of 2003. The average price for all perlite sold or used by mining companies was \$40.57 per ton, which was an increase of 6.2% compared with that of 2003. The average price of expanded perlite was \$226 per ton, up from \$221 per ton in 2003; the range in reported prices, however, was wide—from less than \$100 per ton to more than \$1,000 per ton.

The average price by use of expanded perlite, in descending order, was low-temperature insulation, \$448 per ton; fillers, \$395 per ton; concrete aggregate, \$389 per ton; masonry- and cavity-fill insulation, \$342 per ton; filter aid, \$328 per ton; plaster aggregate, \$328 per ton; horticultural aggregate, \$324 per ton; laundries, \$270 per ton; and formed products, \$147 per ton (table 3).

## Foreign Trade

Export and import data were derived from U.S. Census Bureau data. Exports of processed crude and expanded perlite, primarily to Canada, were estimated to be 37,000 t, unchanged compared with those of 2003. The value of exports could not be calculated based on available information, but the average prices quoted previously could be applied.

Imports of processed crude perlite, almost exclusively from Greece, decreased by 3% to about 238,000 t. The average customs value of perlite imports was estimated to be \$31.16 per ton. If insurance and freight costs (\$3.52) were added to the value of the imports, the total average value of imports was estimated to rise to \$34.68 per ton. Perlite expanding plants, mostly in the Eastern United States, continued to purchase less expensive, imported perlite. Price differences were mainly attributable to higher domestic rail transportation costs compared with cheaper international waterborne transportation costs. Imported perlite has a price advantage compared with domestically produced perlite owing to the low cost of shipping it from Greece to the United States east coast. Perlite production in Greece is centered on the islands of Milos and Kos, which offer deepwater access to large ocean-going vessels, thus lowering freight cost. U.S. producers normally must transport perlite by rail, which is subject to higher insurance and freight rates, causing transportation costs to be higher.

## World Review

Based on available information, the United States was estimated to be the leading consumer of processed crude and expanded perlite in 2004. Greece was estimated to have produced about 525,000 t and sold or used the largest amount of perlite among the countries listed in table 4. Other leading producers of processed crude perlite, in descending order, were the United States, Japan, Mexico, Hungary, and Turkey. In 2004, 15 countries produced 1.95 million metric tons of perlite. Owing to a lack of reliable information, however, this total does not include all major producing countries, such as China, which was probably the leading or second leading producer in the world.

## Outlook

Total consumption of processed and expanded perlite in the United States is expected to increase slightly in 2005. Perlite imports are not expected to increase as quickly as they have in recent years as the available markets near saturation in the Eastern United States. Prices for crude and especially expanded perlite are expected to increase as costs for transportation (both for waterborne and rail) and the expansion process rise owing to increases in fuel costs.

## GENERAL SOURCES OF INFORMATION

### U.S. Geological Survey Publications

Lightweight Aggregates. Ch. in United States Mineral Resources, Professional Paper 820, 1973.  
Perlite. Ch. in Mineral Commodity Summaries, annual.

### Other

Bates, R.L., 1969, Geology of the industrial rocks and minerals: New York, NY, Dover Publications Inc., 459 p.  
Harben, P.W., 2002, The industrial minerals handybook: Surrey, United Kingdom, Industrial Minerals Information, 409 p.  
Harben, P.W., and Bates, R.L., 1990, Industrial minerals—Geology and world deposits: Surrey, United Kingdom, Metal Bulletin plc, 312 p.  
Industrial Minerals, monthly.  
Perlite. Ch. in Mineral Facts and Problems, U.S. Bureau of Mines Bulletin 675, 1985.

TABLE 1  
PERLITE MINED, PROCESSED, EXPANDED, AND SOLD OR USED BY PRODUCERS IN THE UNITED STATES<sup>1</sup>

(Thousand metric tons and thousand dollars)

Year	Perlite mined <sup>2</sup>	Processed perlite							
		Used at own					Total quantity sold or used	Expanded perlite	
		Sold to expanders		plant to make		Quantity produced		Sold or used	
		expanded material		Quantity	Value			Quantity	Value
		Quantity	Value						
2000	873	570	19,600	101	3,100	672	715	715	148,000
2001	611	490	17,900	97	3,450	588	686	693	146,000
2002	638	419	15,100	102	3,890	521	674	672	146,000
2003	591	381	14,800	112	4,060	493	665	664	147,000
2004	601	407	16,700	101	3,950	508	673	670	151,000

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Crude ore mined and stockpiled for processing.

TABLE 2  
EXPANDED PERLITE PRODUCED AND SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY STATE<sup>1</sup>

State	2003				2004			
	Quantity produced (metric tons)	Sold or used		Average value per ton <sup>2</sup>	Quantity produced (metric tons)	Sold or used		Average value per ton <sup>2</sup>
		Quantity (metric tons)	Value (thousands)			Quantity (metric tons)	Value (thousands)	
California	32,100	32,100	\$10,600	\$328	31,500	31,500	\$10,500	\$334
Florida	31,900	31,300	7,880	251	34,000	30,700	7,770	253
Michigan	21,400	21,400	4,980	232	21,000	21,000	5,380	256
Mississippi	69,400	69,400	9,440	136	64,400	64,400	8,990	139
Nevada	3,860	3,860	1,080	279	3,820	3,820	1,120	292
Pennsylvania	52,200	52,200	9,080	174	52,200	52,200	9,260	177
Other <sup>3</sup>	455,000	454,000	104,000	229	466,000	466,000	108,000	223
Total or average	665,000	664,000	147,000	221	673,000	670,000	151,000	226

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Average value is based on unrounded data and rounded to the nearest dollar.

<sup>3</sup>Includes Alabama, Arizona, Arkansas, Colorado, Georgia, Idaho, Illinois, Indiana, Kansas, Maine, Massachusetts, Minnesota, Missouri, Nevada, New Jersey, North Carolina, Ohio, Oklahoma, Oregon, Tennessee, Texas, Utah, Virginia, Wisconsin, and Wyoming.

TABLE 3  
EXPANDED PERLITE SOLD OR USED BY PRODUCERS IN THE UNITED STATES, BY USE<sup>1</sup>

Use	2003			2004		
	Quantity (metric tons)	Value (thousands)	Average value per ton <sup>2</sup>	Quantity (metric tons)	Value (thousands)	Average value per ton <sup>2</sup>
Concrete aggregate	2,970	\$982	\$331	2,790	\$1,090	\$389
Fillers	66,600	27,400	410	74,000	29,300	395
Filter aid	59,600	19,500	327	49,600	16,300	328
Formed products <sup>3</sup>	401,000	58,200	145	398,000	58,400	147
Horticultural aggregate	86,400	26,400	306	90,800	29,400	324
Laundries	3,030	817	270	3,170	855	270
Low-temperature insulation	3,560	1,530	429	1,790	799	448
Masonry- and cavity-fill insulation	3,440	1,240	359	3,310	1,130	342
Plaster aggregate	7,490	2,160	289	11,500	3,780	328
Other <sup>4</sup>	30,600	8,760	286	35,600	10,400	293
Total or average	664,000	147,000	221	670,000	151,000	226

<sup>1</sup>Data are rounded to no more than three significant digits, except average value; may not add to totals shown.

<sup>2</sup>Average value is based on unrounded data and is rounded to the nearest dollar.

<sup>3</sup>Includes acoustic ceiling panels, pipe insulation, roof insulation board, and unspecified formed products.

<sup>4</sup>Includes explosives, high-temperature insulation, paint, refractory, soap, steel, sugar manufacture, and various unspecified industrial uses.

TABLE 4  
PERLITE: WORLD PRODUCTION, BY COUNTRY<sup>1, 2</sup>

(Metric tons)

Country <sup>3</sup>	2000	2001	2002	2003	2004 <sup>c</sup>
Armenia <sup>c</sup>	35,000	35,000	35,000	35,000	35,000
Australia <sup>c, 4</sup>	5,000	5,000	5,000	5,000	5,000
Greece, screened	504,000 <sup>r</sup>	449,000 <sup>r</sup>	516,000 <sup>r</sup>	525,000 <sup>r</sup>	525,000
Georgia	NA	NA	NA	45,000	45,000
Hungary <sup>c, 4</sup>	150,000	151,000	140,000	145,000	145,000
Iran	15,000 <sup>c</sup>	18,130	20,000	20,000	20,000
Italy <sup>c</sup>	60,000	60,000	60,000	60,000	60,000
Japan <sup>c</sup>	250,000	250,000	250,000	240,000	240,000
Mexico <sup>4</sup>	68,702	80,297	85,703	194,464 <sup>r</sup>	195,000
Philippines	5,650	6,000 <sup>c</sup>	6,000 <sup>c</sup>	6,000	6,000
Slovakia	17,020	14,910	18,630	15,000 <sup>r</sup>	15,000
South Africa <sup>c</sup>	1,200	1,200	1,200	1,200	1,200
Turkey <sup>4</sup>	149,429	70,738	151,902	136,633 <sup>r</sup>	140,000
United States <sup>5</sup>	672,000	588,000	521,000	493,000	508,000 <sup>6</sup>
Zimbabwe <sup>c</sup>	5,000	5,000	5,000	5,000	5,000
Total	1,940,000 <sup>r</sup>	1,730,000 <sup>r</sup>	1,820,000 <sup>r</sup>	1,880,000 <sup>r</sup>	1,950,000

<sup>c</sup>Estimated. <sup>r</sup>Revised. NA Not available.

<sup>1</sup>World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Unless otherwise stated, figures represent processed ore output. Table contains data available through May 20, 2005.

<sup>3</sup>In addition to the countries listed, Algeria, Bulgaria, China, Iceland, Morocco, Mozambique, and Russia are thought to have produced perlite, but output is not reported, and available information is inadequate for the formulation of reliable estimates of output levels.

<sup>4</sup>Crude ore.

<sup>5</sup>Processed ore sold and used by producers.

<sup>6</sup>Reported figure.